

# Impact Analysis of the Massachusetts Low-Rise Residential Energy Code

National Workshop on State Building Energy Codes  
New Orleans - July 12, 2000

# Goals (unranked)

- measure code compliance
- estimate energy savings
- identify opportunities for improvement

# Lay of the land

- statewide uniform building code
- 750 locally appointed code officials in 351 cities and towns
- MEC 1995 (modified) adopted 3/1/98
- extensive training effort 1998-1999
  - code officials
  - builders
  - designers
  - material suppliers

# Starting with what's given

- 1995 utility new construction studies
  - provide pre-code baseline for comparison
  - help shape methodology of new study

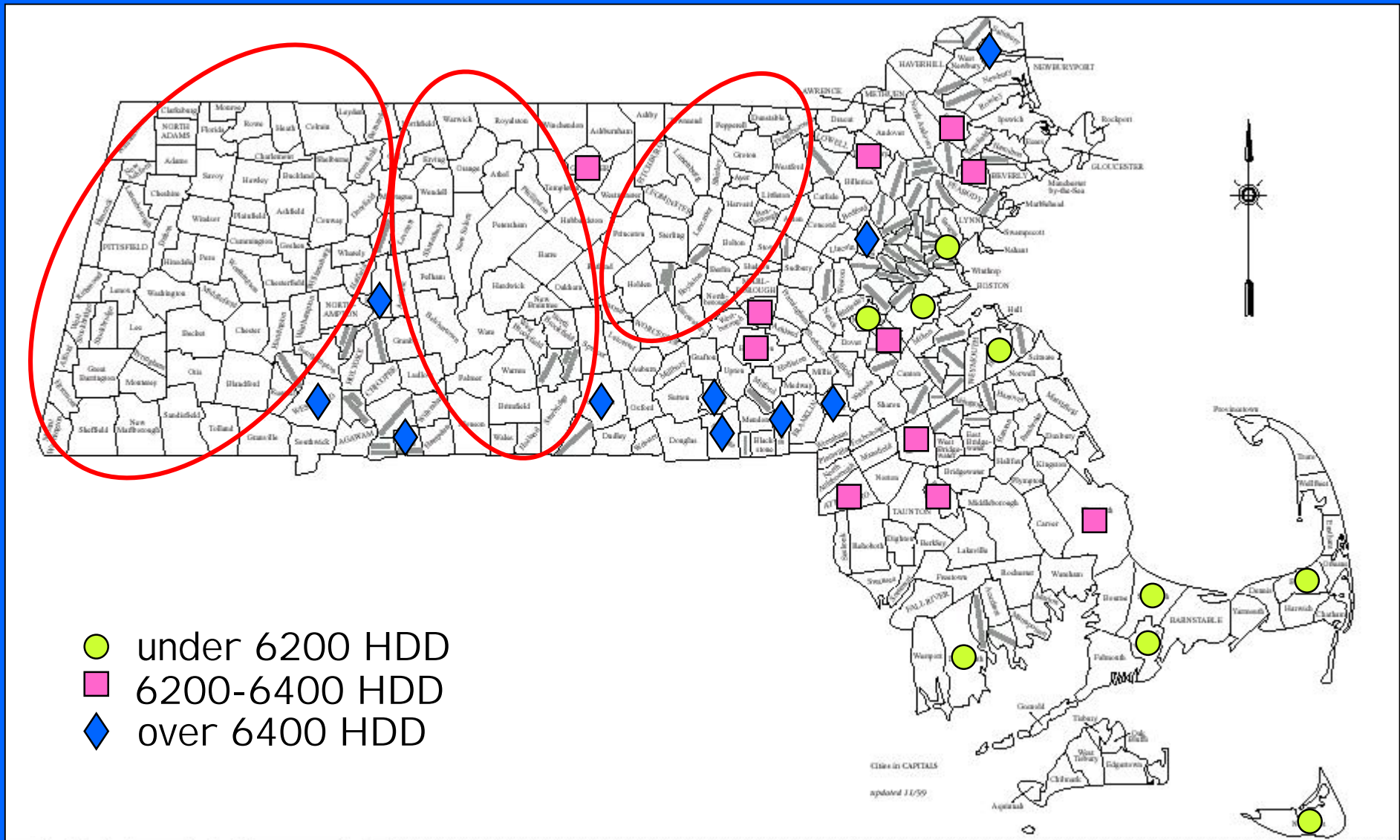
# Workplan

- select sample
- visit building departments
- visit sites
- perform analysis
- interview market "actors"

# Sample Selection

- two-stage cluster sampling
- 30 towns selected by "probability proportional to size" (pps)
  - based on permit data for 1999
  - towns with under 15 permits eliminated from sample
- also stratified by climate (3 HDD bins)
- 25-30 files selected at random in each town
- 7-8 houses visited for data collection
- total sample of 220 houses

# Sampling of Cities and Towns



# Building Department Visits

- random selection of 25-30 files per department
- review files for:
  - presence of compliance documentation
  - type of compliance approach utilized
  - inspection documentation
  - any additional supporting documentation
    - » take-off calculation, window schedules
    - » HVAC sizing calculation



# Site Visits

- check house features vs. file info
  - insulation levels (where accessible)
  - window types (as possible)
  - HVAC efficiencies
- gather additional information for energy analysis
  - appliance/lighting inventory
  - envelope infiltration
  - duct leakage
  - orientation
  - etc.

# Analysis

- rates of compliance
- degree of compliance/non-compliance
- energy savings vs. pre-code baseline  
(based on multiple DOE 2 runs)

# Market Actor Interviews

- in-depth sessions with 50
  - builders
  - developers
  - architects
  - materials suppliers
  - code officials
- to assess perceived impact of code
- additional brief phone questionnaire to builders

# Budget

- DOE grant funding of \$170,000
- utility support
  - use of existing pre-code baseline study
  - add-on features of site visit by ENERGY STAR sponsors

# Results ??

- come to DOE National Workshop 2001